

ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18

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Title of Invention**SYNTHESIS AND EVALUATION OF NEW CYANINE DYES AS MINOR
GROOVE OF [POLY(dA-dT)]₂ BINDERS**

Application Number:

Confirmation Number:

First Named Applicant: Gunnar Westman

Attorney Docket Number: STRM.P001

Search string: (5656449).pn.

US Patent Documents**Note: Applicant is not required to submit a paper copy of cited US Patent Documents**

Init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
1/41/	1	5656449	1997-08-12	Yue			

Signature

Examiner Name	Date
<i>B. Denby</i>	<i>5-8-06</i>



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U.S. PATENT DOCUMENTS

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Application Number	10/605,961
		Filing Date	11/10/2003
		First Named Inventor	Westman et al.
		Art Unit	
		Examiner Name	
Sheet 2 of 4	Attorney Docket Number	STRM.P-001	

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
h		CARLSSON ET AL., Optical and photophysical properties of the oxazole yellow DNA probes YO and YOYO, J. Phys. Chem., 1994, Page(s) 10313-10321, Volume 98	
B		COLSON ET AL., Electric linear dichroism as a new tool to study sequence preference in drug binding to DNA, Biophysical Chemistry, 1996, Page(s) 125-140, Volume 58	
B		DELIGEORGIEV ET AL., Preparation of Intercalating Dye Thiazole Orange and Derivatives, Dyes and Pigments, 1995, Page(s) 315-322, Volume 29, Number 4	
B		GURRIERI ET AL., Direct Visualization of Individual DNA Molecules by Fluorescence Microscopy: Characterization of the Factors Affecting Signal/Background and Optimization of Imaging Conditions Using YOYO, Analytical Biochemistry, 1997, Page(s) 44-53, Volume 249	
B		HAUGLAND, Nucleic Acid Stains, Handbook of Fluorescent Probes and Research Chemicals, 1996, Page(s) 144-152, 6th Edition, Number 8	
B		ISACSSON ET AL., Solid-phase synthesis of asymmetric cyanine dyes, Tetrahedron Letters, 2001, Page(s) 3207-3210, Volume 42	
B		JORGENSEN ET AL., Interaction of Hoechst 33258 with Repeating Synthetic DNA Polymers and Natural DNA, Journal of Biomolecular Structure & Dynamics, 1988, Page(s) 1005-1023, Volume 5, Number 5	
B		KAPUSCINSKI ET AL., Fluorescent complexes of DNA with DAPI 4'-diamidine-2-phenyl indole.2HCl or DCI 4',6-dicarboxyamide-2-phenyl indole, Nucleic Acids Res., 1978, Page(s) 3775-3799, Volume 5, No. 10	
B		KUBISTA ET AL., Characterization of Interaction between DNA and 4',6-Diamidino-2-phenylindole by Optical Spectroscopy, Biochemistry, 1987, Page(s) 4545-4553, Volume 26	
B		LARSSON ET AL., Characterization of the Binding of YO to [Poly(dA-dT)] ₂ and [Poly(dG-dC)] ₂ and of the Fluorescent Properties of YO and YOYO Complexed with the Polynucleotides and Double-Stranded DNA, Biopolymers, 1995, Page(s) 153-167, Vol. 36	
B		LARSSON ET AL., Characterization of the Binding of the Fluorescent Dyes YO and YOYO to DNA by Polarized Light Spectroscopy, 1994, Page(s) 8459-8465, Volume 116	

Examiner Signature	<i>B. Rant</i>	Date Considered	5-8-06
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h		LEE ET AL., Thiazole Orange: A New Dye for Reticulocyte Analysis, Cytometry, 1986, Page(s) 508-517, Volume 7	
h		LYNG ET AL., The CD of Ligand-DNA Systems. 2. Poly (dA-dt) B-DNA, Biopolymers, 1992, Page(s) 1201-1214, Volume 32	
h		MATSUZAWA ET AL., Change of the Higher Order Structure in a Giant DNA Induced by 4',6-Diamidino-2-Phenylindole as a Minor Groove Binder and Ethidium Bromide as an Intercalator, Nucleosides & Nucleotides, 1994, Page(s) 1415-1423, Volume 13, Number 6 & 7	
h		MIKHEIKIN ET AL., Binding of Symmetrical Cyanine Dyes into the DNA Minor Groove, Journal of Biomolecular Structure & Dynamics, 2000, Page(s) 59-72, Volume 18, No. 1	
h		MITAL ET AL., Synthesis of Some 5-Substituted 2-Aminobenzenethiols and their Conversion into Phenothiazines via Smile Rearrangement, J. Chem. Soc., 1969, Page(s) 2148-2150	
h		NAIM ET AL., Studies in antiparasitic agents: Part 17 -- Synthesis of 2-acylamino-6-substituted-benzthiazoles as potential anthelmintic agents, Indian Journal of Chemistry, 1991, Page(s) 494-498, Volume 30B	
h		NEIDLE, Crystallographic Insights into DNA Minor Groove Recognition by Drugs, Biopolymers, 1997, Page(s) 105-121, Volume 44	
h		NETZEL ET AL., Base-Content Dependence of Emission Enhancements, Quantum Yields, and Lifetimes for Cyanine Dyes Bound to Double-Strand DNA: Photophysical Properties of Monomeric and Bichromophoric DNA Stains, J. Phys. Chem., 1995, Page(s) 17936-17947, Volume 99	
h		NORDEN ET AL., Linear dichroism spectroscopy of nucleic acids, Quarterly Review of Biophysics, 1992, Page(s) 51-170, Volume 25, No. 1	
h		NYGREN ET AL., The Interactions Between the Fluorescent Dye Thiazole Orange and DNA, Biopolymers, 1998, Page(s) 39-51, Volume 46	

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Bp		OGUL'CHANSKY ET AL., Interactions of cyanine dyes with nucleic acids. XXIV. Aggregation of monomethine cyanine dyes in presence of DNA and its manifestation in absorption and fluorescence spectra, Spectrochimica Acta - Part A, 2001, Page(s) 1525-1532, Volume 57	
Bp		PETTY ET AL., Thermodynamic Characterization of the Association of Cyanine Dyes with DNA, J. Phys. Chem. B, 2000, Page(s) 7221-7227, Volume 104	
Bp		RYE ET AL., Stable fluorescent complexes of double-stranded DNA with bis-intercalating asymmetric cyanine dyes: properties and applications, Nucleic Acids Res., 1992, Page(s) 2803-2812, Volume 20, Number 11	
Bp		SEIFERT ET AL., Spontaneous Assembly of Helical Cyanine Dye Aggregates on DNA Nanotemplates, J. Am. Chem. Soc., 1999, Page(s) 2987-2995, Volume 121	
Bp		SINGER ET AL., Characterization of PicoGreen Reagent and Development of a Fluorescence-Based Solution Assay for Double-Stranded DNA Quantitation, Analytical Biochemistry, 1997, Page(s) 228-238, Volume 249	
Bp		SVANVIK ET AL., Light-Up Probes: Thiazole Orange-Conjugated Peptide Nucleic Acid for Detection of Target Nucleic Acid in Homogeneous Solution, Analytical Biochemistry, 2000, Page(s) 26-35, Volume 281	
Bp		WILSON ET AL., Binding of 4',6-Diamidino-2-phenylindole (DAPI) to GC and Mixed Sequences in DNA: Intercalation of a Classical Groove-Binding Molecule, J. Am. Chem. Soc., 1989, Page(s) 5008-5010, Volume 111	
Bp		YOSHINAGA ET AL., Intercalating Fluorescence Dye YOYO-1 Prevents the Folding Transition in Giant Duplex DNA, Biochemical and Biophysical Research Communications, 2001, Page(s) 264-267, Volume 286	
Bp		ZHOU ET AL., Blue Sensitizing Dyes: Synthesis, Spectroscopy, and Performance in Photographic Emulsions, Journal of Imaging Science and Technology, 1995, Page(s) 244-252, Volume 39, Number 3	
Bp		ZUBAROVSKII ET AL., Asymmetric imidacarbocyanines with hetaryls as substituents, Chemical Abstracts, 1975, Page(s) 851-854, Volume 41, No. 8	Abstr

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